

REMARKS

In response to the Office Action dated July 5, 2002, claims 1, 4, 8, 10, 11, 13-16, 18-20, 22-28, 31, 34, 36-44, 52 and 56 are amended, and claims 58 and 59 are added. Claims 1-44, 52, 53, 56, 58 and 59 are now active in this application. No new matter has been added.

The indication that claims 6, 9, 20, 21, 31, 34, 38, 39 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims is acknowledged and appreciated.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 102 AND § 103

I. Claims 1, 2, 15, 17, 22-25, 28-30, 32, 33, 35, 52, 53 and 56 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata in view of Koizumi et al. (hereinafter, Koizumi). The reasoning for the rejection is substantially the same as that for the rejection of claims 1, 2, 15-17, 22-24, 28, 32, 35 and 56 are rejected under 35 U.S.C. §102(b) as being anticipated by Nagata in the Official Action of December 19, 2001. However, the Examiner now admits that "Nagata does not explicitly mention predetermined number of blocks which is well known in the art." Koizumi is relied upon to disclose predetermined number of blocks in an image processing method and the Examiner maintains that it would have been obvious to one of ordinary skill in the art to use the scheme of Koizumi in the apparatus of Nagata "in order to accurately and quickly determine the color image or monochromatic image" as doing so would increase the efficiency of the apparatus.

II. Claims 3, 4, 7, 8, 10-14, 26, 27, 36, 37, 40 and 41 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata and Koizumi in view of Saitoh et al. (hereinafter, Saitoh), relied upon by the Examiner as disclosing, *inter alia*, using ratio of the number of color pixels to that of the entire pixels in the block to determine whether a block is a particular color block, the thresholds differ from each other, designating a block in certain area and using saturation data of color pixel for discriminating a particular color area that the threshold is different from those of other areas. The reasoning for the rejection is substantially the same as that for the rejection of claims 3, 4, 7, 8, 10-14, 36, 37, 40 and 41 are rejected under 35 U.S.C. §102(b) as being anticipated by Nagata in the Official Action of December 19, 2001, but with Koizumi added for the teaching discussed in section I above.

III. Claims 18 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata and Koizumi et al. in view of Suzuki, relied upon by the Examiner as disclosing using ratio of number of color blocks to that of the blocks to determine whether the image is color image. The reasoning for the rejection is substantially the same as that for the rejection of claims 18 and 19 under 35 U.S.C. §102(b) as being anticipated by Nagata in the Official Action of December 19, 2001, but with Koizumi added for the teaching discussed in section I above.

IV. Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Nagata and Koizumi et al. in view of Okano et al. (hereinafter, Okano), relied upon to teach creating a color pixel histogram for a block. Since claim depends from claim 1 via claims 3 and 4, the teaching of Koizumi is as discussed in section I above.

V. The rejections are respectfully traversed.

As to independent claims 1, 52 and 56, the Examiner now maintains that Nagata can be modified in view of the teaching of Koizumi and provide means for (claims 1 and 52) or a step of (claim 56) dividing the image into a predetermined number of a plurality of blocks and counting means (claims 1 and 52) for or a step of (claim 56) counting the number of color pixels *for each block*. However, this is incorrect.

As noted in the Amendment dated April 18, 2002, Nagata does not disclose or suggest to ever *divide* the image into any number of a plurality of blocks and then count the number of color pixels *for each block*. What Nagata discloses is determining whether or not there are a plurality of continuous color pixels occurring in each line of pixels *by detecting when the number of continuous color pixels occurring in a line of pixels is at least equal to a preset threshold*. The actual occurrence that the number of continuous color pixels in a line of pixels at least equaling the preset threshold is called a “color block” and the size of the color block is the number of continuous color pixels occurring in the line of pixels at the time the chain of continuous color pixels is broken (see column 4, lines 23-44). Thus, in Nagata, a color *block* is determined by counting the number of continuous color pixels in a line that are equal to or greater than a preset threshold number of continuous color pixels.

Also, counting the number of color pixels *for each block* (of the predetermined number of a plurality of divided blocks) recited in the claims is inherently subsequent to establishing a plurality of divided blocks. However, in Nagata, as the color blocks are established by counting the number of continuous color pixels in a line, the establishing of color blocks is subsequent to or concurrent with the counting the number of pixels, which is completely different from what is recited in the claims. Further evidence of the fact that there is no initial dividing of the

image into a plurality of blocks in Nagata before counting the number of continuous color pixels is that there is no set size for each color block, and the size of a color block is determined after counting the color pixels (see different size color blocks of Fig. 4).

In Nagata, if the number of continuous color pixels occurring in a line of pixels is less than the preset threshold, the continuous color pixels are not a color block, and Nagata has no disclosure of what to call such occurrence, but a reasonable name would be a “*non-color block*”. Thus, when there is an occurrence of a number of continuous color pixels occurring in a line of pixels that is less than the preset threshold, there will actually be color pixels in such non-color block, but no count of the number of color pixels in such non-color block will exist, as the counter 8 of Fig. 9 will be immediately cleared when the output of OR gate 7 goes low, indicating that no color pixel detection signal is outputted (see Fig. 9 and column 7, lines 3-7). For example, assume a line of pixels where each pixel in the line alternates between a color pixel and a non-color pixel. In such case, the non-color block will be all the pixels of that line. Furthermore, while each color pixel encountered will initially cause counter 8 to count via the occurrence of the output of OR 7 going high, the next pixel will cause the counter 8 to immediately reset (losing the count) via the occurrence of the output of OR 7 going low; i.e., a non-color pixel. Thus, while the entire line will be a non-color block, and half the pixels of the line will be color pixels, in fact, there will be no count of the number of color pixels in such non-color block.

Thus, in Nagata, color/monochrome discrimination is made for each line and in case the number of continuous color pixels in a line exceeds threshold, the line including the continuous color pixels is discriminated as a color “block”. Plotting of color blocks in Nagata is variable. In the present application, an image is previously divided into blocks and the number of color pixels

in a block is counted for color/monochrome discrimination. Therefore, a person of ordinary skill in the art would clearly understand and appreciate that the concept of "block" in Nagata is different from the present invention.

In view of the above, there can be no doubt that Nagata does not perform the above noted functions and steps recited in claims 1, 52 and 56. The Examiner **has never addressed these differences** that were initially asserted in the Amendment dated April 18, 2002.

In Koizumi, an image is divided into blocks and the number of color pixels and the number of monochrome pixels are counted for each divided blocks so as to carry out color/monochrome discrimination.

Saitoh discloses technique to detect special documents such as valuable papers, bills, or the like. This technique is quite different from the technique of color/monochrome document discrimination directed to the present application.

The Examiner asserts that that it would have been obvious to one of ordinary skill in the art to use the scheme of Koizumi (predetermined number of blocks in an image processing method) in the apparatus of Nagata "in order to accurately and quickly determine the color image or monochromatic image", as doing so would increase the efficiency of the apparatus, such modification would materially alter the manner in which Nagata is intended to function.

To expedite prosecution:

1) Claim 1 is amended to recite, *inter alia*:

a brightness data extracting section for extracting brightness data from image information of each pixel;
means for determining a reference value based on extracted brightness data;

a first determination means for determining whether or not a pixel included in an image is a color pixel by using the reference value...

None of the applied prior art references disclose or suggest composing elements such as "means for determining a reference value based on extracted brightness data" and "a first determination means for determining whether or not a pixel included in an image is a color pixel by using the reference value". These composing elements are supported in the specification, especially: page 24, line 10; page 25, line 1; page 30, lines 13-18; and page 31, lines 6-12.

2) Claim 4 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest to use a second threshold which is lower than the first threshold for color-monochrome determination with regard to a block which has a feature of a specified color.

3) Claim 4 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest that first threshold for at least one of blocks differs from first threshold for other blocks.

4) Claim 10 is rewritten in independent form using the claim 1 as originally filed and adding the limitation "means for adjusting the first threshold *using an operation panel*". None of the applied prior art references disclose or suggest to adjust first threshold with an operation panel.

5) Claim 11 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest to use third threshold which is lower

than the first threshold for color/monochrome determination with regard to a block on a certain portion.

6) Claim 11 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest to determine an image as a color image irrespectively of determination results for other blocks in case a color pixel ratio in a block exceeds fourth threshold which is higher than first threshold.

7) Claim 16 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest to determine an image as a color image irrespectively of determination results for other blocks in case a block on a certain portion is determined as a color block.

8) Claim 19 is rewritten in independent form using the claim 1 as originally filed and adding the limitation “means for adjusting the first threshold *using an operation panel*.” None of the applied prior art references disclose or suggest that the first threshold is adjusted with an operation panel.

9) Claim 20 is rewritten in independent form including all the limitations of claim 1 as originally filed, and of intervening claims 2 and 18. As claim 20 was indicating allowable, amended claim 20 is believed to be allowable also.

10) Claim 24 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest to count up the number of color pixels for a block group consisting of a plurality of blocks adjacent to one another.

11) Claim 31 is rewritten in independent form including all the limitations of claim 1 as originally filed, and of intervening claim 29. As claim 31 was indicating allowable, amended claim 31 is believed to be allowable also.

12) Claim 34 is rewritten in independent form including all the limitations of claim 1 as originally filed, and of intervening claim 32. As claim 34 was indicating allowable, amended claim 34 is believed to be allowable also.

13) Claim 36 is rewritten in independent form using the claim 1 as originally filed and adding the limitation “*a saturation data extracting unit for extracting saturation data based on difference values of maximum values and minimum values of an R datum, a G datum and a B datum of each pixel.*” None of the applied prior art references disclose or suggest a saturation data extracting unit as described above.

14) Claim 40 is rewritten in independent form using the claim 1 as originally filed. None of the applied prior art references disclose or suggest a saturation data extracting unit as described above.

15) Claim 52 is amended to recite, *inter alia*:

means for inputting an image;
a brightness data extracting section for extracting brightness data from image information of each pixel;
means for determining a reference value based on extracted brightness data;
a first determination means for determining whether or not a pixel included in an image is a color pixel by using the reference value...

16) Claim 56 is amended to recite, *inter alia*:

a step of extracting brightness data from image information of each pixel;
a step of determining a reference value based on extracted brightness data;
a step of determining whether or not a pixel included in an image is a color pixel by using the reference value...

As with amended claims 1 and 52, none of the applied prior art references disclose or suggest composing steps such as "determining a reference value based on extracted brightness data" and "determining whether or not a pixel included in an image is a color pixel by using the reference value".

17) Claims 14, 15, 18, 22, 23, 25, 26, 27, 28, 37, 38, 39, 41, 42, 43 and 44 are amended for consistency with the other amendments and to assure the correct reference as to "threshold" and "determination means".

Claims 1-44, 52, 53 and 56, as amended, are patentable over Nagata and Koizumi, even when considered in view of Saitoh and Suzuki. Consequently, the allowance of amended claims 1-44, 52, 53 and 56, as amended, is respectfully solicited.

NEW CLAIMS

New claims 58 and 59 are added.

Claim 58 depends from claim 1 and adds the limitation:

a saturation data extracting unit for extracting saturation data from image information of each pixel, wherein the first determination means compares saturation data of each pixel with the reference value to determine whether or not a pixel is a color pixel.

However, as claim 58 depends from amended claim 1, claim 58 is patentable over the applied prior art references also.

New independent claim 59 recites:

An image processing apparatus comprising:
a saturation data extracting unit for extracting saturation data based on difference values of maximum values and minimum values of an R datum, a G datum and a B datum of each pixel;
a first determination means for comparing saturation data of each pixel with the reference value and determining whether or not the pixel is a color pixel;
means for dividing an image into a predetermining number of a plurality of blocks;
counting means for counting the number of color pixels for each block;
and
second determination means for determining whether or not the image is a color image based on the counting result by the counting means.

None of the applied prior art references disclose or suggest composing elements such as "a saturation data extracting unit for extracting saturation data based on difference values of maximum values and minimum values of an R datum, a G datum and a B datum of each pixel" and "a first determination means for comparing saturation data of each pixel with the reference value and determining whether or not the a pixel is a color pixel". Thus, claim 59 is patentable over the applied prior art references also.

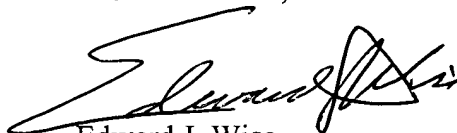
CONCLUSION

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Edward J. Wise', is written over a horizontal line.

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VERSION WITH MARKINGS SHOWING CHANGES MADE

Please amend the claims 1, 4, 8, 10, 11, 13-16, 18-20, 22-28, 31, 34, 36-44, 52 and 56 as follows:

1. (Twice Amended) An image processing apparatus including:

a brightness data extracting section for extracting brightness data from image information of each pixel;

means for determining a reference value based on extracted brightness data;

a first determination means for determining whether or not a pixel included in an image is a color pixel by using the reference value;

means for dividing the image into a predetermined number of a plurality of blocks;

counting means for counting the number of color pixels for each block; and

second determination means for determining whether or not the image is a color image based on the counting result by the counting means.

4. (Amended) An image processing apparatus [of claim 3 further] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means;

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means, and

the third determination means determines a block as a color block in case color pixel ratio which is the ratio of the number of color pixels to that of entire pixels in the block exceeds a first threshold; and

fourth determination means for determining whether or not a block has a feature of a specified color, wherein

the third determination means determines a block which has the feature as a color block in case the color pixel ratio exceeds a second threshold which is lower than the first threshold.

8. (Amended) An image processing apparatus [of claim 3] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block; and

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means,

the third determination means determines a block as a color block in case color pixel ratio which is the ratio of the number of color pixels to that of entire pixels in the block exceeds a first threshold, and

the first threshold for at least one [of blocks] block differs from the first threshold for other blocks.

10. (Amended) An image processing apparatus [of claim 3 further] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means, and

the third determination means determines a block as a color block in case color pixel ratio which is the ratio of the number of color pixels to that of entire pixels in the block exceeds a first threshold; and

means for adjusting the first threshold using an operation panel.

11. (Amended) An image processing apparatus [of claim 3] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means,

the third determination means determines a block as a color block in case color pixel ratio which is the ratio of the number of color pixels to that of entire pixels in the block exceeds a first threshold, and

the third determination means determines a block on a certain portion as a color block in case color pixel ratio of the block exceeds [third] a second threshold which is lower than the first threshold.

13. (Amended) An image processing apparatus [of claim 3] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means,

the third determination means determines a block as a color block in case color pixel ratio which is the ratio of the number of color pixels to that of entire pixels in the block exceeds a first threshold, and

the second determination means determines an image as a color image irrespectively of the determination results for the other blocks by the third determination means in case a block having a color pixel ratio exceeding [the fourth] a second threshold higher than the first threshold is discovered.

14. (Amended) An image processing apparatus of claim 13, further including means for adjusting the [fourth] second threshold.

15. (Amended) An image processing apparatus of claim 2, wherein
the third determination means determines a block as a color block in case the number of color pixels within a block exceeds [fifth] a first threshold.

16. (Amended) An image processing apparatus [of claim 2] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means, and

the second determination means determines an image as a color image irrespective of the determination results for the other blocks by the third determination means in case the third determination means determines a block on a certain portion as a color block.

18. (Amended) An image processing apparatus of claim 2, wherein

the second determination means determines an image as a color image in case a color block ratio which is the ratio of the number of color blocks to all of the blocks included in the image exceeds [sixth] a first threshold.

19. (Amended) An image processing apparatus [of claim 18 further] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means;

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means,
and

the second determination means determines an image as a color image in case a color block ratio which is the ratio of the number of color pixels to all of the blocks included in the image exceeds a first threshold; and
means for adjusting the [sixth] first threshold using an operation panel.

20. (Amended) An image processing apparatus [of claim 18] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein

the second determination means determines whether or not the image is a color image based on the determination result by the third determination means, and

the second determination means determines an image as a color image in case a color block ratio which is the ratio of the number of color pixels to all of the blocks included in the image exceeds a first threshold, and

the second determination means counts the number of color blocks putting a predetermined weight on [the] a block on [the] a certain portion.

22. (Amended) An image processing apparatus of claim 2, wherein

the second determination means determines an image as a color image in case the number of color blocks included in the image exceeds [seventh] a first threshold.

23. (Amended) An image processing apparatus of claim 1, wherein

the second determination means determines an image as a color image in case a block having color pixels which exceeds [eighth] a first threshold in number is discovered.

24. (Amended) An image processing apparatus [of claim 1 further] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means, and

group processing means for summing up the number of color pixels for a block group consisting of a plurality of blocks adjacent to one another, wherein

the second determination means determines whether or not an image is a color image based on the group processing result.

25. (Amended) An image processing apparatus of claim 24, further including [fifth] a third determination means for determining whether or not a target block is a color block based on the number of color pixels for the block group which includes the target block, wherein

the second determination means determines whether or not the image is a color image based on determination result by the [fifth] third determination means.

26. (Amended) An image processing apparatus of claim 25, wherein

the [fifth] third determination means determines a target block as a color block in case group color pixel ratio which is ratio of the number of color pixels to the number of all pixels in the block group represented by the block exceeds [ninth] a first threshold, and

27. (Amended) An image processing apparatus of claim 26, further including means for adjusting the [ninth] first threshold.

28. (Amended) An image processing apparatus of claim 24, wherein

the second determination means determines an image as a color image in case a block group whose color pixels as total of the group exceed [tenth] a first threshold in total as the group is discovered.

31. (Amended) An image processing apparatus [of claim 29] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block; and

second determination means for determining whether or not the image is a color image based on the counting result by the counting means, wherein

the second determination means excludes a block on a certain portion from the determination, and

the certain portion includes image folding portions on an original in the form of a book.

34. (Amended) An image processing apparatus [of claim 32] including:

first determination means for determining whether or not a pixel included in an image is a color pixel;

means for dividing the image into a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

means for correcting the counting result of the number of color pixels for a specified block on a certain portion, wherein

the certain portion includes image folding portions on an original in the form of a book.

36. (Amended) An image processing apparatus [of claim 1] including:
first determination means for determining whether or not a pixel included in an image is a
color pixel;
means for dividing the image into a plurality of blocks;
counting means for counting the number of color pixels for each block;
second determination means for determining whether or not the image is a color image
based on the counting result by the counting means; and
a saturation data extracting unit for extracting saturation data based on difference values
of maximum values and minimum values of an R datum, a G datum and a B datum of each pixel,
wherein

the first determination means determines a pixel as a color pixel in case saturation of the pixel exceeds [eleventh] a first threshold.

37. (Amended) An image processing apparatus of claim 36, wherein
[eleventh] the first threshold for some pixels differs from [eleventh] the first threshold for other pixels.

38. (Amended) An image processing apparatus of claim 37, wherein
the [eleventh] first threshold of pixels farther from [the] a center of the image is higher than that of pixels closer to the center of the image.

39. (Amended) An image processing apparatus of claim 26, further including means for adjusting the [eleventh] first threshold.

40. (Amended) An image processing apparatus [of claim 1] including:
first determination means for determining whether or not a pixel included in an image is a
color pixel;
means for dividing the image into a plurality of blocks;
counting means for counting the number of color pixels for each block; and
second determination means for determining whether or not the image is a color image
based on the counting result by the counting means; and
a saturation data extracting unit for extracting saturation data based on difference values
of maximum values and minimum values of an R datum, a G datum and a B datum of each pixel,
wherein

the first determination means determines a pixel as a color pixel in case the saturation of the pixel exceeds [eleventh] a first threshold and the brightness of it is below [twelfth] a second threshold.

41. (Amended) An image processing apparatus of claim 40, wherein
[twelfth] the second threshold for some pixels differs from [twelfth] the second threshold for other pixels.

42. (Amended) An image processing apparatus of claim 41, wherein
the [twelfth] second threshold of pixels farther from [the] a center of the image is higher than that of pixels closer to the center of the image.

43. (Amended) An image processing apparatus of claim 40, further including means for adjusting the [twelfth] second threshold.

44. (Amended) An image processing apparatus of claim 40, wherein the [twelfth] second threshold is lower than the brightness of pixels on a base portion.

52. (Twice Amended) An image forming apparatus including:
means for inputting an image
a brightness data extracting section for extracting brightness data from image information of each pixel;

means for determining a reference value based on extracted brightness data;
a first determination means for determining whether or not a pixel included in the input image is a color pixel by using the reference value;

means for dividing the image into a predetermined number of a plurality of blocks;
counting means for counting the number of color pixels for each block;
second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

printing means performing color-printing in case the second determination means determines the image as a color image, and performing monochrome-printing in case the second determination means determines the image as a non-color image.

56. (Twice Amended) Color image determination method including:
a step of extracting brightness data from image information of each pixel;

a step of determining a reference value based on extracted brightness data;

a step of determining whether or not pixels included in an image are color pixels,
respectively, by using the reference value;

step of dividing the image into a predetermined number of a plurality of blocks;

step of counting the number of color pixels for each block; and

step of determining whether the image is a color image based on the counting.